

WHAT IS CLAIMED IS

1. A capacitor having a couple of electrodes with a dielectric placed therebetween, at least one of said couple of electrodes being made of copper, wherein between said one electrode and said dielectric, a barrier is provided to prevent diffusion of copper into said dielectric.

2. A capacitor according to Claim 1, wherein said dielectric is made of silicon oxide and said barrier is made of a nitrided metal material having conductivity.

3. A capacitor according to Claim 2, wherein said nitrided metal material is TaN.

4. A capacitor according to Claim 2, wherein said nitrided metal material is TiN.

5. A process for manufacturing a capacitor, wherein said capacitor has a couple of electrodes with a dielectric placed therebetween and at least one of said electrodes is made of copper and said capacitor is formed on a semiconductor substrate, comprising the steps of:

forming a nitrided metal film of a shape corresponding to a desired shape of said one electrode on said semiconductor substrate or said dielectric; and

forming said one electrode on said nitrided metal film by electroplating using said nitrided metal film as the seed.

6. A capacitor manufacturing process according to Claim 5, comprising the steps of:

- forming said nitrided metal film on said semiconductor substrate;
- using said one electrode as the lower electrode and forming a nitrided metal film functioning as a barrier on said lower electrode;
- forming said dielectric on said nitrided metal film; and
- forming the other electrode as the upper electrode on said dielectric.

7. A capacitor manufacturing process according to Claim 5, wherein said nitrided metal film is formed on said dielectric and said nitrided metal film intervening between said dielectric and said one electrode functions as a barrier to diffusion of copper.

8. A capacitor manufacturing process according to Claim 5, wherein the material for said nitrided metal film is TaN.

9. A capacitor manufacturing process according to Claim 5, wherein the material for said nitrided metal film is TiN.